

**WESTBAY
WELL SUMMARY**

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Location ID: WB-1 Field Representative(s): R. Cooper

Date Started: 01/16/90 Date Completed: 04/12/90

Northing: 223464.63 Easting: 416613.89

Brass Cap: 4840.94 Outer Casing: 4841.55 Inner Casing: 4842.43

Drilling Method: Mud & Air-Foam Rotary Drilling Contractor: Larjon Drilling Co.

Driller: T. Crawford & J. Gower

Total Depth Borehole: 356.4' Total Depth Well Casing: 355'

Total Depth Surface Casing: 160'

Diameter Well Casing: 1.5"(I.D.) Diameter Surface Casing: 5"(nominal)

Water Producing (packed-off) Intervals: 189.0' to 206.0'

Water Producing (packed-off) Intervals: 249.0' to 261.0'

Water Producing (packed-off) Intervals: 326.0' to 341.0'

Water Zone(s) Detected: 205' and 325'-330' Water Level Open Borehole: 158.80'(T.O.S.C.)
04/03/90

Water Level Cased Borehole: See pressure profile data sheets

Quik-Foam Use: unknown

Estimated Water Use: 2,600 gallons

Well Casing:

1.5in x 2ft SCD 80 PVC:	<u>1</u>	=	<u>2</u>	ft
1.5in x 5ft SCD 80 PVC:	<u>8</u>	=	<u>40</u>	ft
1.5in x 10ft SCD 80 PVC:	<u>28</u>	=	<u>280</u>	ft
Total SCD 80 PVC pipe:			<u>322</u>	ft

5ft MP packer:	<u>7</u>	=	<u>35</u>	ft
Regular coupling:	<u>32</u>			
Pumping port coupling:	<u>3</u>			
Measurement port coupling:	<u>8</u>			
End cap:	<u>2</u>			
Casing Clamp:	<u>0</u>			
Magnetic collar:	<u>3</u>			

Well Completion:

100# bags 16/40 sand:	bags
100# bags 10/20 sand:	bags
100# bags 8/14 sand:	bags
100# bags 8/20 sand:	bags
94# bags cement:	bags
5 gal. buckets bentonite:	buckets
50# bentonite powder:	bags
Benseal:	bags

Surface Casing:

94# bags cement:	2	bags
50# bags bentonite powder:	20	bags (for mud drilling only)

Pertinent Field Notes:

01/16/90	Larjon worked on PL-4 monitor well until 12:30 p.m. Finished mobilizing air-foam drilling equipment to WB-1. Drilled from 0'-80', air-foam rotary with 7 7/8" bit. Used 600 gallons water while drilling. - Contaldo
01/17/90	Larjon worked at PL-4 then set up at WB-1 to drill with mud. (Problems arose with circulating cuttings using air-foam so a switch to mud rotary was made.) - Contaldo
01/18/90	Larjon worked at PL-4 and NASA-Well-PT, no work done at WB-1. - Contaldo
01/19/90	Drilled from 80' to 140' using mud rotary with 7 7/8" bit. Drilled into a possible sandstone unit. Cuttings from 102' to 140' were clay-rich, possibly sandstone cement. - Cooper
01/22/90	Continued drilling from 140'-160'. The location of the top of bedrock was difficult to determine because of heavy uphole cutting contamination. Top of limestone bedrock between 150' and 155'. Install 5" x 161' steel surface casing. - Cooper

- 01/23/90 Installed tremie to the bottom of the borehole and blew mud out using the portable air compressor. Removed tremie and mobilized mud drilling equipment to WB-2. Two sacks of cement were used to stabilize the temporary surface casing in WB-1. - Cooper
- 02/02/90 Larjon worked setting up new system to drill with 4" air hammer-bit at WB-1. Drilled from 160'-255' using air-foam rotary and 4" bit. Good water producing zone (20-25 gpm) encountered at approximately 205'. Drilling progressed slowly due to the hydrostatic pressure from the water column on the hammer bit. - Cooper
- 02/03/90 Drilled holes in sub above the hammer-bit to relieve some of the hydrostatic pressure on the hammer-bit. Continued drilling from 225' to 245'. Ruptured hydraulic line stopped drilling until Monday. - Cooper
- 02/05/90 Replaced hydraulic line on rig and drilled 245'-325'. Drilling rates are slow in interbedded calcareous shales and limestones. - Cooper
- 02/06/90 Continued drilling from 325' to 359'. Increased water production between 325' and 330'. Well produces 30-40 gpm by 359' (TD). Developed out \approx 600 gallons of water by air-jetting method. - Cooper
- 03/12/90 Installed 3.5" O.D. PVC sleeve to a depth of 230.6' below ground level. PVC could not be worked below this point. Removed PVC sleeve. - Kirby
- 04/11/90 Installed PVC sleeve to 230' for completion purposes. Sound bottom of borehole at 356.4' (2.6' of slough). Installed Westbay casing/couples (see casing installation log for details). Inflated lowermost four packers. - Contaldo
- 04/12/90 Inflated uppermost three packers to complete well installation. Conducted first pressure profile. - Contaldo
- 05/08/90 Conducted second pressure profile. - Contaldo
- 05/09/90 Conducted rising head slug test on zone #2. - Contaldo
- 05/11/90 Conducted rising head slug test on zone #4. - Contaldo
- 05/14/90 Conducted rising head slug test on zone #6. - Contaldo
- 07/26/90 Begin installing silica sand above uppermost packer in well/surface casing annulus and in surface casing/borehole annulus. Bridge at 37' between surface casing and borehole which could not be broken. - Egan
- 08/02/90 Install bentonite plug in both the inner and outer annular spaces. - Egan
- 08/09/90 Install load of grout in both inner and outer annular spaces. Grout not to surface yet. - Egan

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08/29/90 Grout well to surface. Lockheed will finish well head. - Egan